

29/508780



Patent No. 6,890,431
Request for Cert. of Correction dated September 22, 2005
Attorney Docket No. 1473-991365



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No. : 6,890,431 Confirmation No. 7916
Inventor : Eades et al.
Issued : May 10, 2005
Title : Buoyant Media Flotation
Examiner : Peter A. Hruskoci
Customer No. : 28289

REQUEST FOR CERTIFICATE OF CORRECTION OF PATENT
FOR PTO MISTAKE (37 C.F.R. 1.322(a))

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

ATTENTION: Decision and Certificate of Correction Branch
Patent Issue Division

Certificate
SEP 30 2005
of Correction

Sir:

In accordance with 35 U.S.C. §254, we attach hereto Form PTO/SB/44 and a copy of proof of PTO errors and request that a Certificate of Correction be issued in the above-identified patent. The following errors appear in the patent as printed:

Title Page, See Item (56), References Cited, under U.S. PATENT DOCUMENTS, the first patent, "Gregnawalt" should read -- Greenawalt --
(See Form 892 which accompanied the Office Action dated 12/20/2000.)

Column 3, Line 45, "result in the" should read -- results in the --
(See Preliminary Amendment dated May 24, 2002, page 2, first full paragraph, line 6.)

Column 3, Line 47, after "chamber 30.", insert the following sentence: -- The lower region of the flotation chamber contains no outlet or mechanism for the removal of solids; all solids removed from flotation chamber 30 are removed from the upper region of flotation chamber 30. --
(See Preliminary Amendment dated May 24, 2002, page 2, first full paragraph, lines 6-9.)

Column 3, Line 51, after "hydraulic desludging.", insert the following sentence:
-- The removal of sludge, coagulant, and flocculant is effected from the upper region of flotation chamber 30. --
(See Preliminary Amendment dated May 24, 2002, page 2, first full paragraph, lines 11-13.)

Column 4, Lines 41-43, delete the last paragraph of Claim 1 and insert in its place:
-- a recycling line for recycling said solid buoyant media to said flocculation chamber. --
(See Amendment dated June 19, 2001, page 2, Claim 12, lines 7-8, and the Examiner's Amendment dated 11/17/2004, page 2, paragraph 4, lines 6-7, which was hand-written on the Amendment. Claim 12 issued as Claim 1.)

Patent No. 6,890,431
Request for Cert. of Correction dated September 22, 2005
Attorney Docket No. 1473-991365

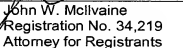
Column 6, Lines 7-9, delete the last paragraph of Claim 12 and insert in its place: -- a recycling line for recycling said solid buoyant media to said flocculation chamber. --
(See Amendment dated May 24, 2002, page 3, Claim 23, lines 8-9 and the Examiner's Amendment dated 11/17/2004, last paragraph on page 2, bridging to page 3, lines 1-2, which was hand-written on the Amendment. Claim 23 issued as Claim 12.)

The Printing Office missed several parts of the Examiner's Amendment. Since it is difficult to follow the various Amendments as well as the Examiner's Amendments, we are attaching a copy of the "Allowed Claims" for ease in preparing the Certificate of Correction.

Respectfully submitted,

THE WEBB LAW FIRM

By



John W. McIlvaine
Registration No. 34,219
Attorney for Registrants
700 Koppers Building
436 Seventh Avenue
Pittsburgh, PA 15219-1845
Telephone: (412) 471-8815
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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

Page 1 of 1

PATENT NO. : 6,890,431
APPLICATION NO. : 09/506,780
ISSUE DATE : May 10, 2005
INVENTORS : Eades et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title Page. See Item (56), References Cited, under U.S. PATENT DOCUMENTS, the first patent, "Gregnawalt" should read -- Greenawalt --

Column 3, Line 45, "result in the" should read -- results in the --

Column 3, Line 47, after "chamber 30.", insert the following sentence: -- The lower region of the flotation chamber contains no outlet or mechanism for the removal of solids; all solids removed from flotation chamber 30 are removed from the upper region of flotation chamber 30. --

Column 3, Line 51, after "hydraulic desludging.", insert the following sentence: -- The removal of sludge, coagulant, and flocculant is effected from the upper region of flotation chamber 30. --

Column 4, Lines 41-43, delete the last paragraph of Claim 1 and insert in its place:
-- a recycling line for recycling said solid buoyant media to said flocculation chamber. --

Column 6, Lines 7-9, delete the last paragraph of Claim 12 and insert in its place: -- a recycling line for recycling said solid buoyant media to said flocculation chamber. --

MAILING ADDRESS OF SENDER: The Webb Law Firm
700 Koppers Building
436 Seventh Avenue
Pittsburgh, PA 15219-1845

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-2450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Attention: Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select Option 2.

OCT 3 2005



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/506,781	02/18/00	EADES	A 1473-991365

THOMAS J CLINTON
700 KOPPERS BUILDING
436 SEVENTH AVENUE
PITTSBURGH PA 15219-1818

INR2/1220

EXAMINER

HRUSKOC1,P

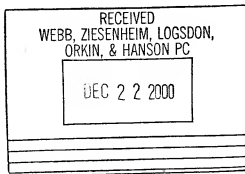
ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 12/20/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

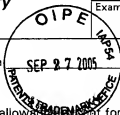


Office Action Summary

Application No.
09/506,781

Applicant(s)

Eades et al.

Examiner
Peter A. HruskociGroup Art Unit
1724

- ☐ Responsive to communication(s) filed on _____
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance, except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

- ☒ Claim(s) 1-17 is/are pending in the application.
- Of the above, claim(s) 1-11 is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 12-17 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☒ Claims 1-17 are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
- ☐ received in Application No. (Series Code/Serial Number) _____
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

- ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- ☒ Notice of References Cited, PTO-892
- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

OCT 3 2005

Notice of References Cited

Application No.

09/506,781

Applicant(s)

Edes et al.

Examiner

Helskoll

Group Art Unit

1724

Page 1 of 1

U.S. PATENT DOCUMENTS

*	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS
A	4156648	5/79	KUEPPER	210	202
B	5728304	3/98	Deh	210	703
C	1250303	12/17	GREENAWALT		
D	5798046	8/98	GREER et al.	210	705
E	5900154	5/99	HENRIKSEN	210	703
F	3884541	4/73	Rundell et al.	210	219
G	4463606	9/89	Ryall	210	150
H	383795	4/67	Rubin	220	112
I					
J					
K					
L					
M					

FOREIGN PATENT DOCUMENTS

*	DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUBCLASS
N						
O						
P						
Q						
R						
S						
T						

NON-PATENT DOCUMENTS

*	DOCUMENT (Including Author, Title, Source, and Pertinent Pages)	DATE
U		
V		
W		
X		

* A copy of this reference is not being furnished with this Office action.

(See Manual of Patent Examining Procedure, Section 707.03(d)).

OCT 9 2005

OCT 3 2005



PATENT APPLICATION
Serial No. 09/506,781
Atty. Docket No. 1473-991365

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group Art 1724 :
In re application of :
Andrew EADES et al. : **BUOYANT MEDIA FLOTATION**
Serial No. 09/506,781 :
Filed February 18, 2000 :
Examiner Peter A. Hruskoci :
Pittsburgh, Pennsylvania
May 24, 2002

PRELIMINARY AMENDMENT

Box RCE
Commissioner for Patents
Washington, D.C. 20231

Sir:

Pursuant to the Office Action dated July 24, 2001 and Notice of Appeal filed January 24, 2002, Applicants hereby submit the following amendments and remarks, a Petition for Extension of Time with requisite fee, a Request for Continued Examination with accompanying papers and requisite fee and a Rule 132 Declaration.

IN THE SPECIFICATION

On page 5, please replace the current version of the second paragraph commencing at line 26 and bridging page 27, ending at line 11 with the following replacement

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to the Commissioner for Patents, Washington, D.C. 20231 on May 24, 2002.	
_____ Ellen Harteau	
_____ Signature	_____ 5/24/2002 Date

OCT 3 2005

paragraph. Pursuant to 37 CFR § 1.121, the following is a clean version of the replacement paragraph. A marked-up version of the replacement paragraph is attached as a separate sheet.

The fluid mixture, containing coagulants, flocculants, buoyant media, and the solids to be separated, then passes through a flotation chamber feed line 24, into a flotation chamber 30. Flotation chamber 30 is configured so that entering fluid is directed upward, expediting the flotation process. A baffle 32 is an example of a structure directing entering fluid upward. The action of the buoyant media, in conjunction with the coagulant and flocculant, results in the formation of a thick sludge layer 34 at the top of flotation chamber 30. The lower region of the flotation chamber contains no outlet or mechanism for the removal of solids; all solids removed from flotation chamber 30 are removed from the upper region of flotation chamber 30. The sludge layer 34 is separated from the flotation chamber 30 into a sludge hopper 36. The separation can be effected by a chain-and-flight or reciprocating skimmer or other sludge removal device. Sludge can also be removed from the chamber 30 by hydraulic desludging. The removal of sludge, coagulant, and flocculant is effected from the upper region of flotation chamber 30. A clarified fluid 38 is formed by the removal of coagulant and flocculant from the entering fluid by the buoyant media. Optionally, a flotation assistance device 40 can be used to further hasten the flow of separated particles and buoyant media upward. Flotation assistance device 40 may be a dissolved air flotation (DAF) system or DAF pump, or dispersed air system or blower. The output from flotation assistance device 40 enters flotation chamber 30 through a flotation assistance line 42.

IN THE CLAIMS:

Please add new claims 22 and 23 as follows.

22. The system as claimed in claim 12, wherein the flotation chamber has ~~an~~ ^a sludge removal device at the top of said flotation chamber ~~upper region and a lower region, and wherein the lower region is free of a collection device for~~ solids. EA

23. In a system for clarifying water and waste water, comprising:
a mixing chamber, *for mixing coagulant with the water*

a flocculation chamber in fluid communication with the mixing chamber, and

a flotation chamber in fluid communication with the flocculation chamber, the

improvement comprising:

a buoyant media recovery unit in fluid communication with the flotation chamber

and the flocculation chamber, and

~~a recirculating line for recycling said solid buoyant media to~~
~~solid buoyant media, wherein the solid buoyant media passes from the~~
~~said flocculation chamber~~

~~flocculation chamber to the flotation chamber and the buoyant media recovery unit.--~~

for mixing
Flocculant or
solid buoyant
media with
said water.

for
separation
a sludge la
including said
solid buoyant media
from a clarified
water



PATENT APPLICATION
Serial No. 09/506,781
Atty. Docket No. 1473-991365

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group Art Unit 1724 :
In re application of :
Andrew EADES et al. : **BUOYANT MEDIA FLOTATION**
Serial No. 09/506,781 :
Filed February 18, 2000 :
Examiner Peter A. Hruskoci :

Pittsburgh, Pennsylvania
June 19, 2001

AMENDMENT

BOX AMENDMENT - FEE
Commissioner for Patents
Washington, D.C. 20231

Sir:

In response to the Office Action dated December 20, 2000, Applicants submit the accompanying Petition for Extension of Time and the following amendments and remarks:

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to Commissioner for Patents, Washington, D.C. 20231 on June 19, 2001.

John W. Mellvaine, Registration No. 34,219
(Name of Registered Representative)

Signature

06/19/2001
Date

OCT 3 2005

OCT 5 2005

IN THE CLAIMS:

Please cancel the current version of claim 12 and insert the amended version of claim 12 as follows. Pursuant to 37 C.F.R. § 1.121, the following is a clean copy of the amended claims. A marked-up copy of the amended claim is attached on separate sheets.

12. (Amended) A system for fluid clarification comprising:
a mixing chamber, *for mixing coagulant with said fluid*
a flocculation chamber in fluid communication with the mixing chamber, *for mixing flocculant and solid buoyant media with said fluid*
a flotation chamber in fluid communication with the flocculation chamber;
for separating a sludge layer including said solid buoyant media from a clarified liquid
a buoyant media recovery unit in fluid communication with the flotation chamber and the flocculation chamber, *for removing separated sludge from said solid buoyant media* and
a recycling line for recycling said solid buoyant media to
~~solid buoyant media, wherein the solid buoyant media passes from the~~
~~flocculation chamber to the flotation chamber and the buoyant media recovery unit.~~
said flocculation chamber

Please add new claims 18-21 as follows:

18. (New claim) The system as claimed in claim 13, wherein the flotation assistance device is a dissolved air flotation device.

19. (New claim) The system as claimed in claim 12, wherein the solid buoyant media is selected from the group consisting of finely divided solids, foamed solids, and solids provided with internal voids by processes other than foaming.

20. (New claim) The system as claimed in claim 12, wherein the solid buoyant media consist of plastic powder which has a specific gravity less than 1.0.

21. (New claim) The system as claimed in claim 20⁹, wherein the plastic powder is selected from the group consisting of polyethylene and polypropylene.

OCT 3 2005



Notice of Allowability

Application No.	Applicant(s)	
09/506,780	EADES ET AL.	
Examiner	Art Unit	
Peter A. Hruskoci	1724	

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address-

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the papers filed 5/30/02.
2. ☒ The allowed claim(s) is/are 12-23.
3. ☒ The drawings filed on 16 February 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John W. McIlvaine on 11/16/04.

The application has been amended as follows:

In claim 12 line 2 before “,” – for mixing coagulant with said fluid – has been inserted; in line 3 before “,” – for mixing flocculant and solid buoyant media with said fluid – has been inserted; in line 4 before “,” – for separating a sludge layer including said solid buoyant media from a clarified liquid – has been inserted; in line 6 before “,” – for removing separated sludge from said solid buoyant media – has been inserted; and in lines 7 and 8 “solid buoyant media, ...unit” has been changed to – a recycling line for recycling said solid buoyant media to said flocculation chamber –.

Claims 1-11 have been canceled.

In claim 22 lines 1-3 “an...solids” has been changed to – a sludge removal device at the top of said flotation chamber - .

In claim 23 line 2 before “,” – for mixing coagulant with the water – has been inserted; in line 3 before “,” – for mixing flocculant and solid buoyant media with said water – has been inserted; in line 4 before “,” – for separating a sludge layer including said solid buoyant media from a clarified water – has been inserted; in line 7 before “,” – for removing separated sludge from said solid buoyant media – has been inserted; and in lines 8 and 9 “solid buoyant media,


Art Unit: 1724

...unit" has been changed to – a recycling line for recycling said solid buoyant media to said flocculation chamber –.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter A. Hruskoci whose telephone number is (571) 272-1160. The examiner can normally be reached on Monday through Friday from 6:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Peter A. Hruskoci
Primary Examiner
Art Unit 1724

11/17/04

OCT 3 2005

Examiner-Initiated Interview Summary	Application No.	Applicant(s)	
	09/506,780	EADES ET AL.	
	Examiner	Art Unit	
	Peter A. Hruskoci	1724	

All Participants:

- (1) Peter A. Hruskoci.
 (2) John W. McIlvaine.

Date of Interview: 16 November 2004



Status of Application: _____

(3) _____

(4) _____

Time: _____

Type of Interview:

- ☒ Telephonic
☐ Video Conference
☐ Personal (Copy given to: ☐ Applicant ☐ Applicant's representative)

Exhibit Shown or Demonstrated: ☐ Yes ☒ No

If Yes, provide a brief description:

Part I.

Rejection(s) discussed:

Prior Art Rejections as stated in the prior Office action dated 7/24/01

Claims discussed:

All

Prior art documents discussed:

Prior Art of Record

Part II.

SUBSTANCE OF INTERVIEW DESCRIBING THE GENERAL NATURE OF WHAT WAS DISCUSSED:

It was agreed to amend the claims and to cancel nonelected claims 1-11 as shown in the Examiner's Amendment to patentably distinguish over the prior art of record in view of the Beckley Declaration and pages 4-6 of the instant specification.

Part III.

- ☒ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview directly resulted in the allowance of the application. The examiner will provide a written summary of the substance of the interview in the Notice of Allowability.
- ☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview did not result in resolution of all issues. A brief summary by the examiner appears in Part II above.

Peter A. Hruskoci

(Examiner/SPE Signature)

(Applicant/Applicant's Representative Signature – if appropriate)

ALLOWED CLAIMS



1-11 (Canceled)

12. A system for fluid clarification comprising:

a mixing chamber for mixing coagulant with said fluid;

a flocculation chamber in fluid communication with the mixing chamber for mixing flocculant and solid buoyant media with said fluid;

a flotation chamber in fluid communication with the flocculation chamber for separating a sludge layer including said solid buoyant media from a clarified liquid;

a buoyant media recovery unit in fluid communication with the flotation chamber and the flocculation chamber for removing separated sludge from said solid buoyant media; and
a recycling line for recycling said solid buoyant media to said flocculation chamber.

Orig 2 13. The system of claim 12 further comprising a flotation assistance device in fluid communication with the flotation chamber.

Orig 4 14. The system of claim 13 in which the flotation chamber contains lamella plates.

Orig 5 15. The system of claim 12 in which the flotation chamber contains tubes.

Orig 6 16. The system of claim 12 including a baffle in the flotation chamber to direct entering mixed fluid upward.

{W0203480.1}

Orig (7) 12 The system of claim 12 in which the flotation chamber contains immersed membranes.

"A" (3) 18 The system as claimed in claim 18, wherein the flotation assistance device is a dissolved air flotation device.

A (8) 19 The system as claimed in claim 12, wherein the solid buoyant media is selected from the group consisting of finely divided solids, foamed solids, and solids provided with internal voids by processes other than foaming.

A (9) 20 The system as claimed in claim 12, wherein the solid buoyant media consist of plastic powder which has a specific gravity less than 1.0.

A (10) 21 The system as claimed in claim 20, wherein the plastic powder is selected from the group consisting of polyethylene and polypropylene.

B (11) 22 The system as claimed in claim 12, wherein the flotation chamber has a sludge removal device at the top of said flotation chamber.

B
+
A (12) 23 In a system for clarifying water and waste water, comprising:
a mixing chamber for mixing coagulant with the water;
a flocculation chamber in fluid communication with the mixing chamber for mixing flocculant and solid buoyant media with said water; and

a flotation chamber in fluid communication with the flocculation chamber for separating a sludge layer including said solid buoyant media from a clarified water, the improvement comprising:

a buoyant media recovery unit in fluid communication with the flotation chamber and the flocculation chamber for removing separated sludge from said solid buoyant media; and a recycling line for recycling said solid buoyant media to said flocculation chamber.